DOCUMENT RESUME

ED 346 256 CE 061 258

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TITLE	Columbia/Willamette Skill Builders Consortium. Final Performance Report. Appendix 5B Anodizing Inc. (Aluminum Extrusion Manufacturing). Basic Measurement Math. Instructors' Reports and Sample Curriculum Materials.
INSTITUTION	Mount Hood Community Coll., Gresham, Oreg.
SPONS AGENCY	Office of Vocational and Adult Education (ED), Washington, DC. National Workplace Literacy Program.
PUB DATE	Mar 92
CONTRACT	V198A00158-90
NOTE	92p.; For final report, see CE 061 256.
PUB TYPE	Reports - Descriptive (141) -- Guides - Classroom Use - Teaching Guides (For Teacher) (052) -- Guides - Classroom Use - Instructional Materials (For Learner) (051)
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	*Adult Basic Education; Adult Literacy; Community Colleges; Cooperative Programs; Curriculum Development; Educational Cooperation; English (Second Language); *Inplant Programs; *Limited English Speaking; *Literacy Education; *Mathematics Instruction; Mathematics Skills; Metal Industry; Pretests Posttests; Program Development; Program Implementation; School Business Relationship; Second Language Instruction; Unions
IDENTIFIERS	Oregon; *Workplace Literacy

ABSTRACT

Anodizing, Inc., Teamsters Local 162, and Mt. Hood Community College (Oregon) developed a workplace literacy program for workers at Anodizing. These workers did not have the basic skill competencies to benefit from company training efforts in statistical process control and quality assurance and were not able to advance to lead and supervisory positions. Some workers had limited English proficiency. Supervisors conducted the initial recruitment; certain individuals were required to attend. The course was held on company time. Learner selection was based on a pretest; 36 were selected. Initial task analysis was conducted with two supervisors and followed up with three workers. Operations with measurements and counting problems were selected as curriculum emphases. Learners were administered pre- and post-tests. Formative and summative evaluations of the program were conducted. It was found that the company was initially very supportive, the attendance factor was the most discouraging aspect, and the classes were not really conducted on company time. (The four-page report is followed by these appendixes: learner data forms and summary; completed learner evaluation forms; and class materials--worksheets, pretests, and review sheets with answer keys; handouts/overhead transparencies; and forms, such as course summary, training plan, attendance sheets, learner evaluation, and supervisor evaluation of employee.) (YLB)

ED346256

THE COLUMBIA-WILLAMETTE SKILL BUILDERS CONSORTIUM

National Workplace Literacy Program (84.198)
U.S. Department of Education

FINAL PERFORMANCE REPORT

Submitted by
Portland Community College
12000 S.W. 49th Avenue
Portland, Oregon 97219

APPENDIX V. Instructors' Reports and Sample Curriculum Materials

B. Mt. Hood Community College:

Anodizing, Inc.
Aluminum Extrusion Manufacturing
Marjorie Taylor, Sandra Clawson, Scott Copeland,
Merry Jo Chatelain, Wayne Werbel

Basic Measurement Math

CE 061 258

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I Initial contact and identification of needs

Anodizing, Inc. is a 450 worker aluminum extrusion manufacturing facility organized by Teamster Local 162. The union and the company have an excellent relationship. The basic presenting problem at Anodizing, Inc. was that many workers did not have the basic skill competencies to respond to company training efforts in statistical process control and quality assurance. These barriers limited many long standing employees from advancing to lead and supervisory positions. In addition, some workers were limited in their use of the English language. Since Skill Builders had a successful partnership with Local 162 from commercial driver training efforts and the Anodizing, Inc. Vice President in charge of training was a former administrator at the college, it was easy to mobilize the supervisory staff to identify needs for which to build curriculum.

II. Process of collaboration with company to set up classes

- Entry into job site

Two meetings with administration and supervisors were held to discuss the content and scheduling of classes. Support for the classes was high while logistical questions seemed difficult to answer (see below). Union officials sanctioned a plan which resulted in one, one hour class per week. It was agreed that this was minimal, but schedule conflicts made anything else unworkable.

Prior to curriculum development, we were given access to supervisors and worker subject matter experts to participate in task analysis. More data was available than we had time to incorporate in the class. All employees were very helpful and a good foundation was laid for an ongoing relationship.

A meeting was held with shop stewards and the union's business agent to discuss how the class would be viewed by the worker population. They assured us that by using work related materials, little or no stigma would be attached to the class. In fact, the attitude we saw was that this class was important to getting ahead in the company.

- Logistical considerations

Production concerns have been an overriding factor throughout the life of the project. Several meetings were missed and class attendance was affected. The existing schedules of the part-time instructors made it difficult to maintain consistency in curriculum development and delivery of instruction. An adequate classroom was provided and the existing communications network (memos) worked somewhat well to ensure learners knew about classes.

- Recruitment of learners

Supervisors conducted the initial recruitment and from the company's perspective, certain individuals were required to attend. The course was held on company time. The arrangement was sanctioned by the union, however, the worker's perception of the payment for class time was different than what we were led to believe (see Part VII). Selection of learners was based on a pre-test type assessment (see **Appendix I, Learner Data Forms**). Those scoring above 90% on the pre-test were excluded from the class.

III. Determination of curriculum content and development of curriculum

Initial task analysis was conducted with two supervisors and followed up with three workers. Both sources were critical to the identification of worker needs and course objectives. The work force is fairly low-skilled and an abundance of math-related errors occur on the job.

After compiling task analysis notes, the instructors used feedback from the supervisors and workers to outline objectives and begin curriculum development. An effort was made to identify the functional context shared by the greatest number of workers and base the class activities on this context. The result was emphasis on operations with measurements and counting problems. Task analysis also revealed that estimation was a key skill so some emphasis on this was included.

Curriculum was developed by all three instructors. Inability to work together (schedule conflicts) diminished the ability to achieve a good level of consistency across materials, however, the instructional approach (in the classroom) was standardized fairly well.

IV. Delivery of instruction

A. Participants: Thirty-six workers were selected for participation. Two sections were scheduled to allow workers to attend one, one hour session per week. A fair group of minority and ESL workers were included. All but two of the ESL workers were released from the class with plans to work with them under a different format.

B. Factors affecting participation: The aforementioned ESL problem and production demands took the biggest toll on attendance. While administration and department level supervisors encouraged and supported the program, some learners suggested that the boss (a production supervisor) told them the class was ended or that they didn't need it. We suspect that production expectations are quite high and that releasing a worker for classes was considered a disadvantage by those trying to increase or maintain output. The structure of production teams (press crews) is such that with one person missing, it is difficult to meet production standards. General work attendance

was mentioned as a problem so releasing students for classes may have been difficult for some crews. The bulk of instruction occurred in July and August so vacation leave affected attendance as well.

V. Assessment of Learners

- Assessment tools: Pre and post tests are included (unit reviews are in the curriculum package, **Appendix III**, as well). The test items are drawn from task analysis data. Some items are simply calculation problems to determine if the learner is not able to do the problem in (or out of) the work context. The Pre-test was developed by Scott Copeland prior to the curriculum development. The Post-test was developed by Sandra Clawson and Marjorie Taylor following the curriculum development process. This resulted in some inconsistency between instruments and may affect reliability. However, the attrition factor precludes any claims of statistical significance anyway.

- Results: The tests (particularly the Pre-test, with its higher sample size) showed good variance so we believe we have targeted the skill levels with some success. With the drop-out rate and logistical problems, only seven learners did the pre-test. These scores are included. Also included is a run-out of a unit review ("mid-term") to give some idea of progress after four weeks (4 hours) of instruction.

Note: Instructors provided help interpreting the problems when requested. The ESL students and others with low reading skills needed this assistance.

VI. Program Evaluation

- Formative Evaluation: The classroom experience and unit review allowed the instructors to realize that the initial pace of the project was too fast. Learners needed more time and more exercises. In many cases, this course was not a brush-up but actually the first time these learners had been exposed to these skills. It was difficult to respond to this problem with curriculum fairly well completed. The response was to slow down to spend more time on contextual calculations and to only introduce percents in the last session.

- Summative Evaluation: This is underway as we plan another cycle and attempt to learn from earlier problems. Pre- and Post-test progress, learner survey, supervisor and instructor discussions will be used to complete the evaluation process at the end.

VII. Overall issues, concerns, comments

- Facilitative factors: The company was generally well supportive, provided adequate space and initially, encouraged workers to attend.

- Deterrents: The attendance factor was the most discouraging aspect of the project. The meeting area was double booked on two occasions. participation was perceived as being partially on one's own time.

- What worked well? The informal instructional approach that utilized work-related exercises was well received by all learners. The statement "This is just what I need..." was heard a number of times.

- Major problems: Part-time instructors were too limited by their schedules and communication with company officials was difficult at times.

- Unexpected issues: The union officials felt comfortable that the class was being conducted on company time. however, the workers perspective was different. Technically the class was on the clock, the company eliminated a paid lunch period to accomplish this. Workers either stayed a half hour late or came in a half hour early in order to participate and received no more compensation for their extra time.

- What to do differently: Briefly, all the issues raised herein must be addressed. Primarily the attendance issue and release time issue. Also important is scheduling and coordination to allow greater consistency in materials and assessments. More specifics will be forthcoming following the summative evaluation.

- **Time on Activities:**

  40 hours on curriculum development

  38 hours instructional time (three instructors), 20 hours class contact time (10 hours per student, in 2 groups).

  18 hours in meetings to plan and maintain instruction or evaluate.

  10 hours in planning or scheduling (individuals).

  10 hours in recordkeeping, compilations and write up.

APPENDIX I

LEARNER'S DATA FORMS

Skill Builders Learner Data

Social Security Number _____ Term _____ Year _____

Last Name _____ First Name _____ I. _____

Address _____ City/State _____ Zip _____

County _____ Day Phone _____ Sex _____ Birthdate _____

High School last attended _____ State _____ Yr of Grad or GED _____

Duration - time in attendance planned at MHCC
- [ ] 1. 1 Quarter only
- 2. 2 Quarters
- 3. 1 Year
- 4. 2 Years
- 5. 3 Years
- 6. More than 3 Years

Employed
- [ ] F Full time (35+ hrs/week)
- P Part time (5-34 hrs/week)
- N Not employed

Please circle your response to the following four questions:

Ethnic Data
- [ ] 1. American Indian
- 2. Black Afro-American
- 3. Caucasian White
- 4. Oriental Asian
- 5. Spanish Surnamed American (Hispanic Chicano)
- 6. Non U.S. Citizen

Educational Level
- [ ] 1. Less than High School
- 2. GED Certificate
- 3. High School Diploma
- 4. 2 Yrs College - no degree earned
- 5. 3 Yrs College or more - no degree earned
- 6. Certificate
- 7. AA Degree
- 8. Bachelors
- 9. Masters or PhD

Ultimate Motive
- [ ] 1. To get a job
- 2. To enhance my current job
- 3. To get a better job
- 4. Personal enrichment
- 5. To explore a career direction
- 6. Other

Educational Goal
- [ ] 1. To take one class
- 2. To take a few classes
- 3. To earn a 2-year degree
- 4. To earn a 1-year certificate
- 5. To earn a GED certificate
- 6. To earn a 4-year degree
- 7. Other

Course#	Section	Course Name	Attendance	Prev Adult Ed

Employment Information:

Position Title _____ Yrs with company _____ Yrs in present position _____

Partner _____

Assessment:

Screening	Pre Test	Post Test

SKILL BUILDERS LEARNER DATA
DATA SUMMARY

PROGRAM: Anodizing - Summer, 1991

TOTAL STUDENTS SERVED: 34 **Male:** 33 **Female:** 1

BIRTHDATE:

	Male/Female
1946	3/0
1947	1/0
1951	1/0
1955	2/0
1956	3/0
1957	5/0
1960	1/0
1961	2/0
1962	2/0
1964	1/1
1965	1/0
1966	1/0
1968	1/0
1969	2/0
1970	1/0
1971	4/0

ETHNICITY:

	Male/Female
Black Afro/Am	No Response
Caucasian	
Oriental Asian	

EMPLOYED:	**Male/Female**
Not employed	1/0
Part-Time	1/0
Full-Time	6/0

PRE AND POST TEST SCORES

Average increase is 94.6%

EDUCATIONAL LEVEL

	Male/Female
Less than high school	5/1
GED Certificate	11/0
High School Diploma	12/0
2 Yr College/No Degree	2/0

ULTIMATE MOTIVE

	Male/Female
To get a job	4/0
To enhance current job	15/1
To get a better job	4/0
Personal Enrichment	1/0
To explore career	3/0
other	3/0

EDUCATIONAL GOAL

	Male/Female
To take one Class	32/1

SKILL BUILDERS LEARNER DATA
DATA SUMMARY

PROGRAM Anodizing **STUDENTS SERVED** 34 **TERM** Summer **YEAR** 1991

	MALE	FEMALE
SEX:	33	1

BIRTHDATE:

	Male	Female
1930		
1931		
1932		
1933		
1934		
1935		
1936		
1937		

	Male	Female
1938		
1939		
1940		
1941		
1942		
1943		
1944		
1945		

	Male	Female
1946	3	
1947	1	
1948		
1949		
1950		
1951	1	
1952		
1953		

	Male	Female
1954		
1955	2	
1956	3	
1957	5	
1958		
1959		
1960	1	
1961	2	

	Male	Female
1962	2	
1963		
1964	1	1
1965	1	
1966	1	
1967		
1968	1	
1969	2	

	Male	Female
1970	1	
1971	4	
1972		
1973		
1974		
1975		
1976		

ETHNICITY:

	Male	Female
1	N/R	N/R
2		
3		
4		
5		
6		

EMPLOYED

	Male	Female
Not	1	N/R
Part	1	
Full	6	

EDUCATIONAL LEVEL

	Male/Female
1	5/1
2	11/
3	12/
4	2/
5	
6	
7	

ULTIMATE MOTIVE

	Male/Female
1	4/
2	15/1
3	4/
4	1/
5	3/
6	3/

EDUCATIONAL GOAL

	Male/Female
1	32/1
2	
3	
4	
5	
6	
7	

PRE AND POST TEST SCORES:

% PRE/% POST	% PRE/% POST	% PRE/% POST
62/74	69/-	40/-
50/-	74/76	55/-
62/95	33/81	83/-
50/71	-/67	71/-
9/-	81/-	52/-
57/-	68/-	81/-
30/-	57/-	68/-
21/85	52/-	
33/-	55/-	

SKILL BUILDERS LEARNER DATA
DATA SUMMARY

PROGRAM: Anodizing - Winter 1992

TOTAL STUDENTS SERVED: 38 **Male:** 33 **Female:** 5

BIRTHDATE:

	Male/Female
1940	1/0
1944	1/0
1945	1/0
1946	1/0
1949	1/0
1950	1/0
1951	4/0
1952	1/0
1954	1/0
1956	1/0
1957	2/0
1958	1/0
1961	1/0
1962	1/1
1963	1/0
1964	3/1
1965	1/0
1968	1/0

ETHNICITY:

	Male/Female
Black Afro/Am	2/0
Caucasian	19/2
Oriental Asian	1/0

EMPLOYED:

	Male/Female
Full-Time	23/3

PRE AND POST TEST SCORES

Average increase in scores is 10%

EDUCATIONAL LEVEL

	Male/Female
Less than high school	2/0
GED Certificate	3/2
High School Diploma	9/0
2 Yr College/No Degree	5/1
3 Yr College/No Degree	2/0
Bachelor's	1/0

ULTIMATE MOTIVE

	Male/Female
To get a job	1/0
To enhance current job	16/2
To explore career	1/0
other	5/1

EDUCATIONAL GOAL

	Male/Female
To take one Class	24/3

APPENDIX II

LEARNER EVALUATION FORMS

Anodizing, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	5	(4)	3	2	1	very boring
2. This class was						
very hard	5	4	(3)	2	1	very easy
3. On the job this class helped me						
to do more accurate work	(5)	4	3	2	1	not at all
4. The instructors were						
interesting	5	(4)	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	(5)	4	3	2	1	rarely
6. Sufficient practice exercises were included						
too many	5	4	3	(2)	1	too few
7. I received sufficient feedback on my practice exercises						
always	(5)	4	3	2	1	rarely
8. The reviews measured my performance on the lessons						
always	(5)	4	3	2	1	never

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Anodizing, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	5	4	3	2	1	very boring
2. This class was						
very hard	5	4	3	2	1	very easy
3. On the job this class helped me						
to do more accurate work	5	4	3	2	1	not at all
4. The instructors were						
interesting	5	4	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	5	4	3	2	1	rarely
6. Sufficient practice exercises were included						
too many	5	4	3	2	1	too few
7. I received sufficient feedback on my practice exercises						
always	5	4	3	2	1	rarely
8. The reviews measured my performance on the lessons						
always	5	4	3	2	1	never

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9. I received sufficient feedback on my reviews						
always	X	4	3	2	1	never
10. After being in this class, I would						
like to have more training like this	X	4	3	2	1	no more training like this
11. This class has been						
very useful to me on the job	X	4	3	2	1	total useless to me on the job

12. What can you do now that you could not do before taking this class?

Read a tape or resume with knowing what it's read instead of guessing.

13. Has this class helped you meet or work toward any of your personal goals? If so, how?

Has helped me with a little more self confidence that I lack greatly.

14. Would you recommend this class to a co-worker? Why or why not?

Yes.

15. What did you like best about this class? Least?

I likes the learning and the seeing of what is going on not just guessing.

PLEASE RETURN THIS EVALUATION TO JOHN FOSTER BY AUGUST 30, 1991.
THANK YOU FOR YOUR INPUT!

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Anodizing, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	(5)	4	3	2	1	very boring
2. This class was						
very hard	5	(4)	3	2	1	very easy
3. On the job this class helped me						
to do more accurate work	(5)	4	3	2	1	not at all
4. The instructors were						
interesting	(5)	4	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	5	(4)	3	2	1	rarely
6. Sufficient practice exercises were included						
too many	(5)	4	3	2	1	too few
7. I received sufficient feedback on my practice exercises						
always	(5)	4	3	2	1	rarely
8. The reviews measured my performance on the lessons						
always	(5)	4	3	2	1	never

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9. I received sufficient feedback on my reviews						
always	(5)	4	3	2	1	never
10. After being in this class, I would						
like to have more training like this	(5)	4	3	2	1	no more training like this
11. This class has been						
very useful to me on the job	(5)	4	3	2	1	total useless to me on the job

12. What can you do now that you could not do before taking this class?

UNDERSTAND MY WORK BETTER ON THE JOB & WORK FASTER

13. Has this class helped you meet or work toward any of your personal goals? If so, how?

IT'S GAVE ME A BETTER OUT LOOK ON HOW TO MOVE UP ON MY JOB

14. Would you recommend this class to a co-worker? Why or why not?

YES - BECAUSE YOU NEED TO KEEP UP WITH NEW MATH AS IT COMES TO VIEW

15. What did you like best about this class? Least?

UP DATE MY CAPABILITY ON THE JOB

PLEASE RETURN THIS EVALUATION TO JOHN FOSTER BY AUGUST 30, 1991.
THANK YOU FOR YOUR INPUT!

APPENDIX III

WORKSHEETS, HANDOUTS/OVERHEAD TRANSPARENCIES, AND FORMS

ANODIZING, INC.

WORKSHEETS

Skill Builders/Anodizing Inc.
Math Skills Warm Up Test

Things to Keep in Mind...

-The results of this test are kept confidential.

-This test is just a way to see what type of training in math skills are needed.

-There is no way to "flunk" this test! Just do your best.

-You can use a calculator. On most of the problems you don't need a calculator anyway.

-Try to do all your work on the test itself, if you use scrap paper, turn it in with the test.

-Do not copy anyone else's answer.

-If you need help reading any questions, just raise your hand and the instructor can come help you.

-You have about 45 minutes to do the test. If you get done early, turn in the test to the instructor then you can leave.

-Ask any questions if you are not sure what to do.

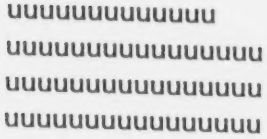
Important... Write your name on the test...
Please print your name so it is easy to read.

Name:_____ Shift:_____

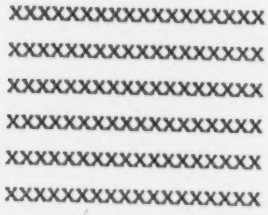
Today's Date:_____ Supervisor:_____

1. Count and Multiply to figure how many pieces are on a truck.

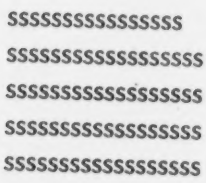
Truck A:



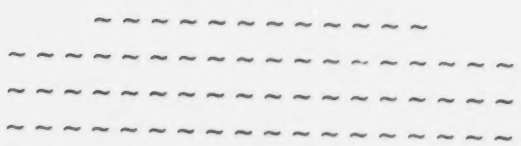
Truck B:



Truck C:



Truck D:



A. How many pcs. on Truck A:_____

B. How many pcs. on Truck B:_____

C. How many pcs. on Truck C:_____

D. How many pcs. on Truck D:_____

E. If a truck has 16 pcs. in each row and has 12 rows on it, how many pcs. does it have?_____

F. If a truck has 114 pcs. in each row and has 11 rows on it, how many pcs. does it have?_____

G. If 3 trucks have 12 pcs. in each row and 9 rows on each truck, how many pcs.?_____

H. Work these problems:

28	142	62	110
x 6	x 9	x 12	x 24

2. Add or Subtract to figure if an order is complete.

A. The WorkOrder calls for 176 pcs....

One truck has 46 pcs.
Another truck has 48 pcs.
Two more trucks have 36 pcs. on each truck.

Is the order complete, long or short?_____

B. The WorkOrder calls for 1128 pcs....

One truck has 620 pcs.
Another truck has 112 pcs.
Two more trucks have 218 pcs. on each truck.

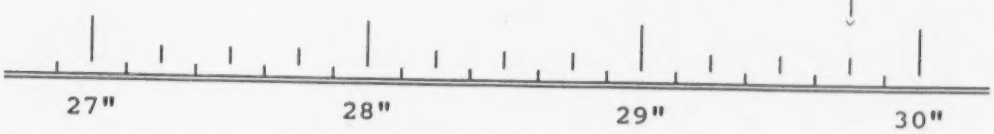
Is the order complete, long or short?_____

C. Work these problems...

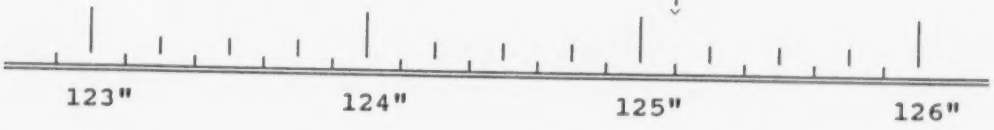
1208	410	1501	961
116	1008	-392	-86
+119	+291		

3. Using Measurements...

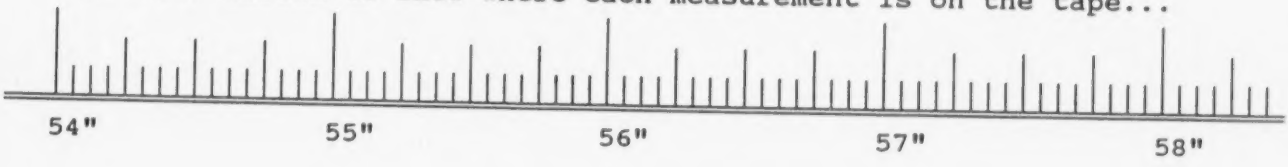
A: How far is it to here?



B: How far is it to here?



D. Draw arrows to show where each measurement is on the tape...



Where is 54 3/8"?

Where is 55 1/4"?

Where is 56 9/16"?

Where is 57 7/8"?

E. If a piece is supposed to be 56 3/4" long and the cut length tolerance allows an extra 1/8", how long can you cut the piece and still be in tolerance?

F. If a piece is supposed to be 157 3/8" long and the cut length tolerance allows and extra 1/4", how long can you cut the piece and still be in tolerance?

4. Use multiplication and division to figure how to split an order, figure wieght per foot and

A. You have 228 pcs. and need to put them on 4 racks (or splines). You want the same amount on each rack. How many will you put on each rack?_____

B. You have 2430 pcs. and need to put them on racks (or splines). You can get 270 on a single rack. How many racks will you need to use? _____

C. Work these problems...

160 ÷ 8=_____ 1525 ÷ 25=_____

D. You have a piece that is 13 1/2" long and it wieghs .941 lbs.. What is the "wieght per foot?"____

E. Each piece is listed at 21.52 square feet. You have 45 pieces, what is the total square feet for all 45 pieces?_____

Figure Tolerances and Convert as needed

The cut length Tolerances are:

any piece up to 10 feet long must be within +/- ("plus or minus) 1/8th inch.

any piece 10 feet to 25' in length must be + 1/4" and - 0 (no shorter than spec.)

any piece over 25' must be no shorter than spec and no longer than + 3/8"

Charts may show decimal values...

.125 = 1/8
.250 = 1/4
.375 = 3/8

Questions

A: What is the shortest you can cut a piece that is to be 96 3/8"?_____

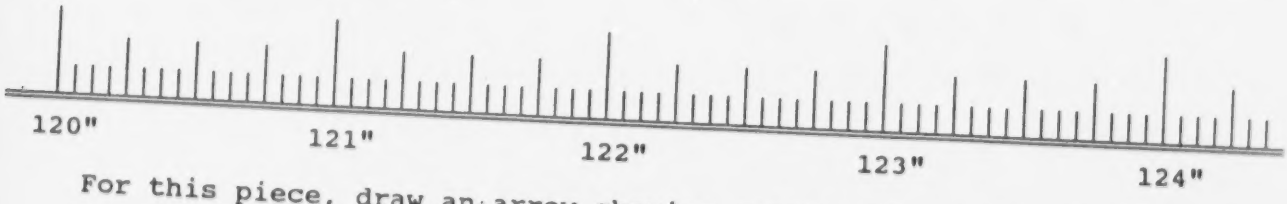
B: What is the longest you can cut a piece that is to be 122 3/4"?_____

C: what is the shortest you could cut a piece that is to be 345 1/8"?_____

D: what is the longest you could cut a piece that is to be 155 7/8"?_____

E: if a piece must be 122.250" +/- .125", how long can this piece be?_____

how short can it be?_____



For this piece, draw an arrow showing exactly where 122.250 would be.

Allowing a minus .125 tolerance, draw an arrow to the shortest measure this piece could be.

Find out if your order is within the Shipping Tolerance

The Tolerances for shipping are:
(you can ship more or less pcs. than specified if you are in the range)

For an order of:

500 lbs or less	between +5% and -35% pcs.
500 to 1999 lbs.	between +5% and -15% pcs.
2000 lbs to 9999 lbs.	between +5% and -10% pcs.
10000 lbs. or more	between +5% and -10% pcs.

Questions

A. Your order calls for 210 pcs. and the weight is 114.87 lbs. If you only have 150 pcs. can you ship the order?

B. Your order calls for 635 pcs. and the weight is 569.60 lbs. If you only have 585 pcs. can you ship the order?

C. Your order calls for 743 pcs. and the weight is 1123.56 lbs. If you only have 631 pcs. can you ship the order?

COUNTING PIECES

TRUCK NO. 1

TRUCK NO. 2

How many on BOTH trucks? _____

Use this Work Order form to complete the truck no. and number of pieces you counted on the previous pages.

DATE	TRUCK	PCS.	LENGTH	TAG NO	PLAN	DEF	NO.	DEF	NO.

Use the above Work Order Form to fill in the truck # and pcs.the previous 5 trucks to answer question #1.

1. The Work Order calls for 560 pcs. Is this work order complete, over or short? _____
   By how many pcs? _____

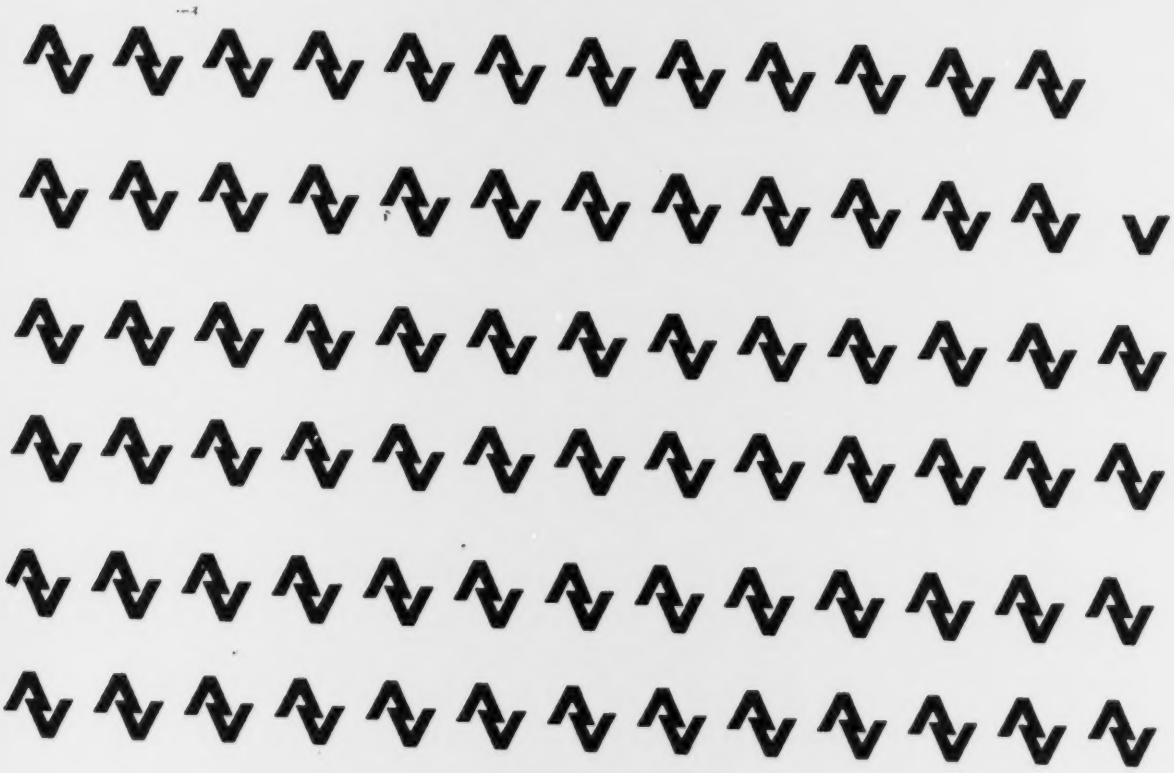
2. A Work Order calls for 1,175 pcs.
   Truck #32 has 52 pcs.
   Truck #23 has 557 pcs.
   Trucks #95 and #135 have 283 pcs. each.
   Is this order complete, over, or short? _____

3. If a truck has 12 pcs. in each row and has 7 rows on it, how many pcs. does it have? _____

4. If 3 trucks each have 11 rows of 15 pcs. and 2 other trucks have 5 rows of 17 pcs. How many pcs. are there? If the work order calls for 665 pcs. are there enough pcs. for this order? _____

COUNTING PIECES

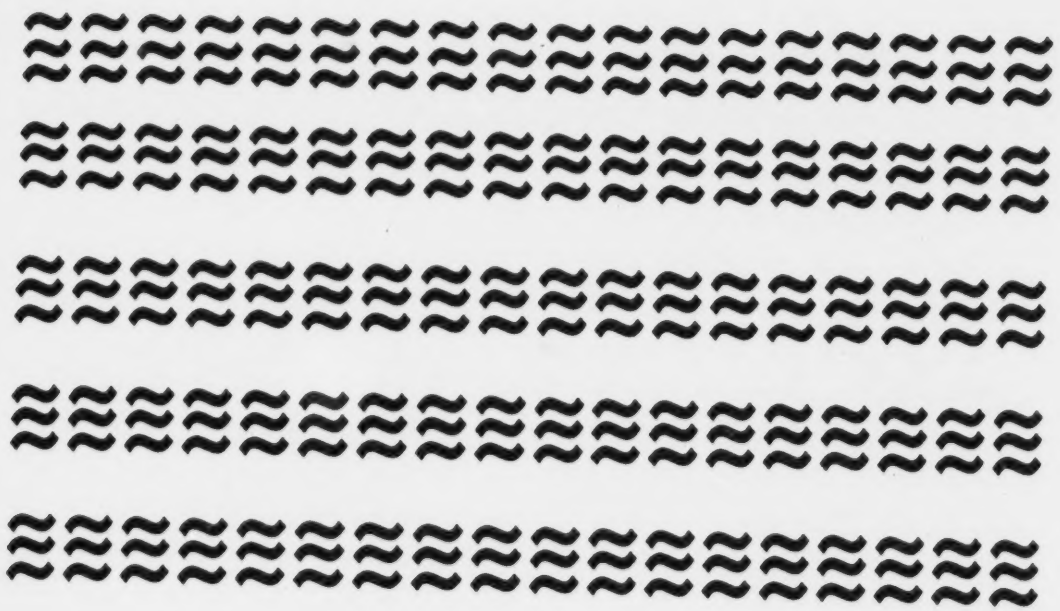
Name _____



How many pieces on this truck? _____

COUNTING PIECES

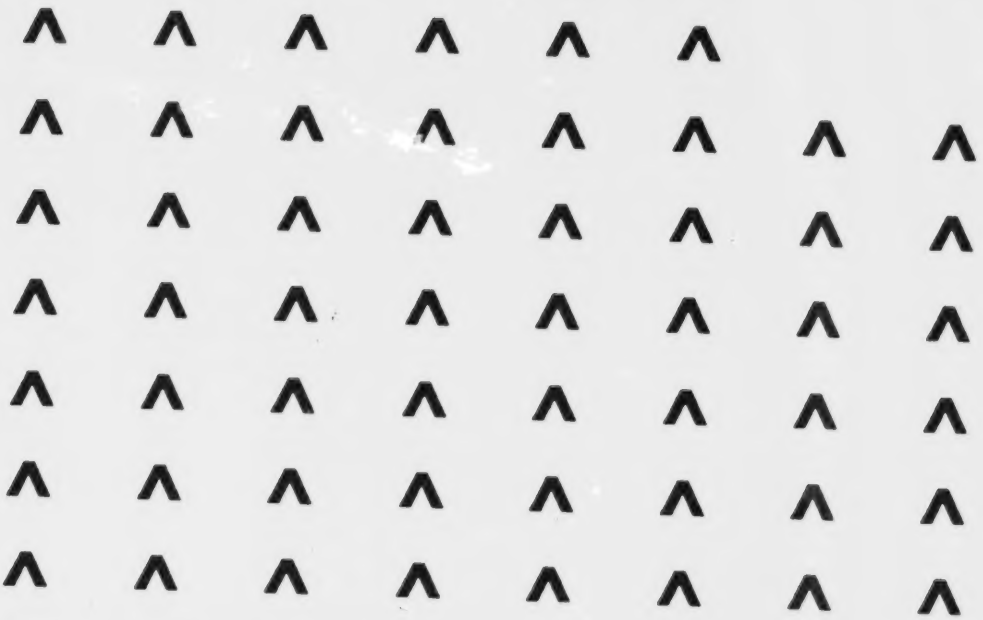
Name _____



How many pieces on this truck? _____

COUNTING PIECES

TRUCK NO. 82



How many pieces on this truck?

TRUCK NO. 96

How many pieces on this truck? _____

NAME _____

DATE _____ **HO 1.2**

MULTIPLICATION

Multily.

1. 46 x 3

2. 98 x 5

3. 87 x 9

4. 465 x 6

5. 709 x 7

6. 843 x 8

7. 8 x 3 x 5 = _____

8. 2 x 7 x 6 = _____

9. 5 x 5 x 9 = _____

0. 40 x 5 = _____

11. 300 x 20 = _____

12. 2,000 x 400 = _____

Estimate the answer. Then find the answer.

13. 67 x 14
Estimate _____

14. 894 x 26
Estimate _____

15. 3,607 x 48
Estimate _____

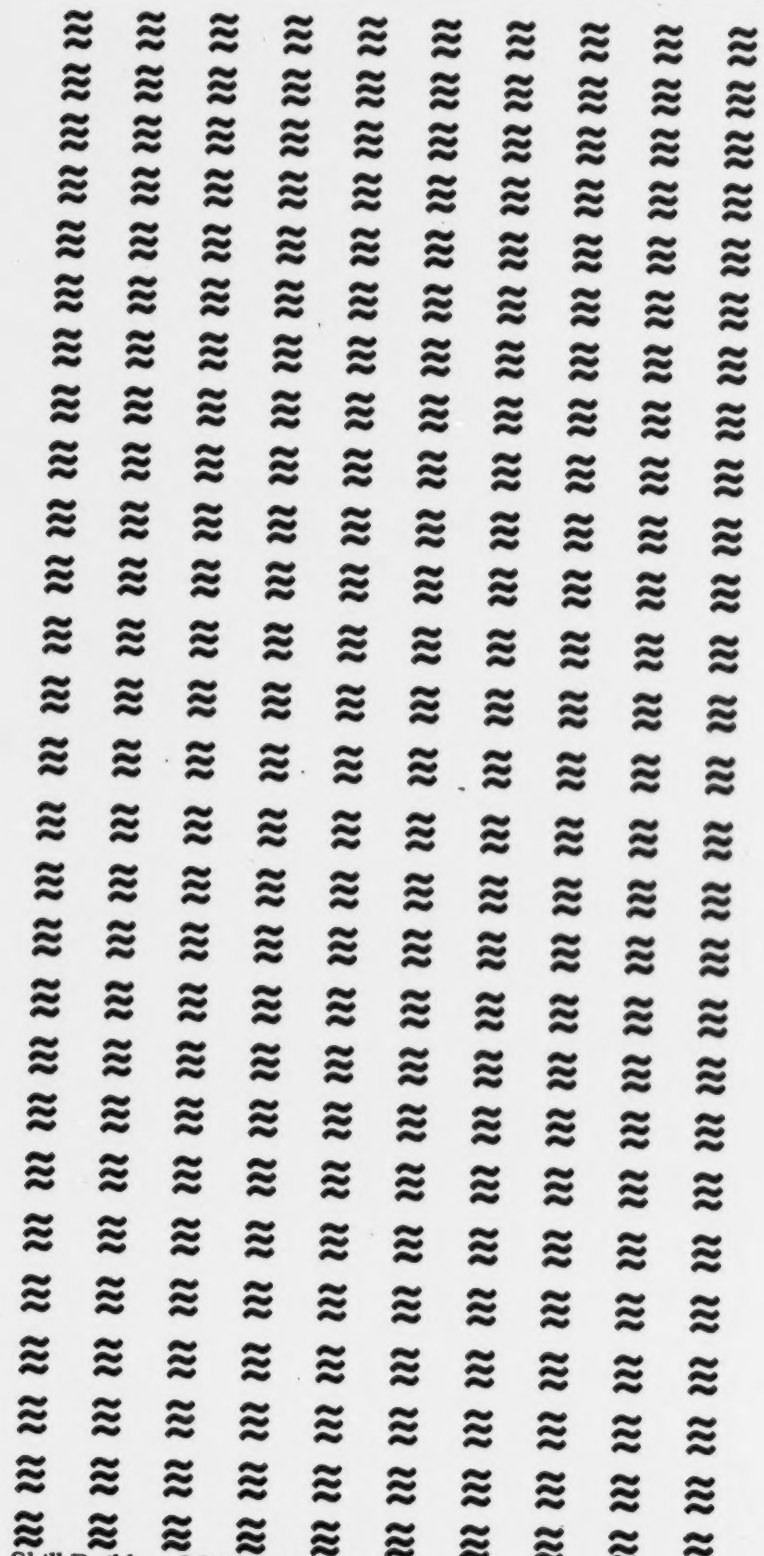
19. Truck #96 has 15 rows. Each row has 20 pairs of pcs. how many pcs. are on this truck?

_____

MULTIPLICATION

20. Truck #1029 has 27 rows. Each row has 10 groupings of 3 pcs. each. How many pcs. are on this truck?

Answer _____



21. Truck #49 has 7 rows of pcs. Each row has 45 pcs. except one which has 40 pcs. How many pcs. are on this truck? _____

22. Truck #1017 has 10 rows. Each row has 30 pairs of pcs. except one which has only 24 pairs of pcs. how many pcs. are on truck #1017? _____

23. Work Order #98062-1 calls for 1500 pcs. Using the 4 previous trucks, complete the form below. Is this order complete, over, or short? _____

DATE	TRUCK	PCS.	LENGTH	TAG NO	PLAN	DEF	NO.	DEF	NO.

MULTIPLICATION KEY

1. 138
2. 490
3. 783
4. 2,790
5. 4,963
6. 6,744
7. 120
8. 84
9. 225
10. 200
11. 6,000
12. 800,000
13. Estimate: 700
    Answer: 938
14. Estimate: 27,000
    Answer: 23,244
15. Estimate: 200,000
    Answer: 173,136
19. 600 pcs.
20. 810 pcs.
21. 310 pcs.
22. 588 pcs.
23. Over

NAME _____

DATE _____

HO 1.3

DIVISION

Divide. Show any remainders.

1. $6\overline{)42}$

2. $8\overline{)2{,}590}$

3. $3\overline{)584}$

4. $26\overline{)87}$

5. $67\overline{)28{,}888}$

6. $34\overline{)7{,}422}$

7. $132\overline{)15{,}050}$

8. $103\overline{)5{,}560}$

9. $294\overline{)30{,}282}$

Estimate the answer. Find the right answer. Check by multiplying

10. $59\overline{)1{,}070}$ Between _____ and _____

11. $22\overline{)1{,}190}$ Between _____ and _____

12. If your work order is for 1,782 pcs. and you know you can get 90 pcs. on a truck, how many trucks will you need? _____

13. Work Order #98062-1 is for 278 pcs. How many trucks would be needed if each were loaded like the example? _____

14. You have 5 trucks and your work order calls for 225 pcs. How many would you put on each truck, if all trucks hold the same amount? _____

15. Your work order is for 550 pcs. 100 pcs. will fit on a partially filled truck. How many more trucks, each holding 150 pcs., will you need?_____

DIVISION KEY

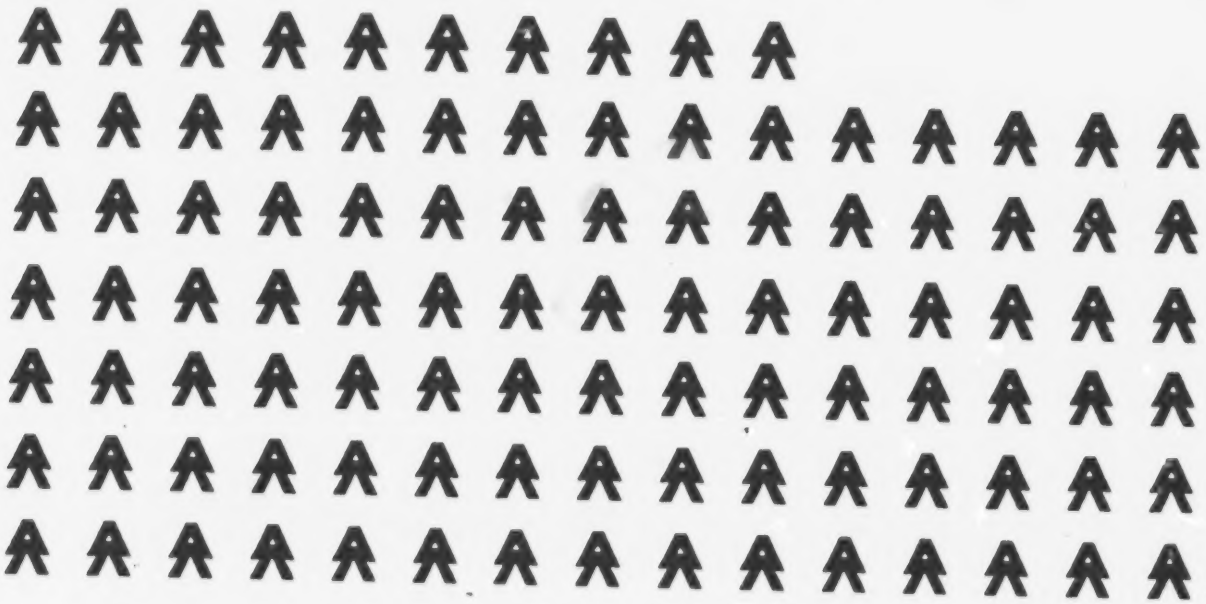
1. 7
2. 323 R. 6
3. 194 R. 2
4. 3 R. 9
5. 431 R. 11
6. 218 R. 10
7. 114 R. 2
8. 53 R. 101
9. 103
10. Between 10 & 20
    18 R. 8
11. Between 50 & 60
    54 R. 2
12. 20 (19.8)
13. 4 (3.97)
14. 45
15. 3

Name _____

Date _____ **HO 1.4**

UNIT I REVIEW

1. How many pieces are on Truck #67? _____



2. Truck #7 has 35 pieces, truck #13 has 47 pieces, truck #41 has 39 pieces. Your Work Order calls for 125 pieces. Is your order:
   _____ Complete
   _____ Long
   _____ Short
   By how many? _____

3. If a truck has 14 pairs of pieces in each row, and there are 16 rows, how many are on the truck? _____

Unit I Review

4. Estimate the answers for each problem, then work each problem. Check your work using the calculator.

$$\begin{array}{r} 763 \\ \times\ 21 \\ \hline \end{array}$$ Estimate _____ Answer _____

$$\begin{array}{r} 37 \\ \times\ 19 \\ \hline \end{array}$$ Estimate _____ Answer _____

$21\overline{)592}$ Estimate _____ Answer _____

$18\overline{)4{,}059}$ Estimate _____ Answer _____

5. Your Work Order calls for 432 pieces. The most a truck can hold is 68 pieces. How many trucks will you need? _____

Unit I Review Key

1. 200

2. Short, 4

3. 448 pieces

4. Estimate 16,000
   Answer 16,023

   Estimate 800
   Answer 703

   Estimate 20
   Answer 28, R 4

   Estimate 205
   Answer 225, R 9

5. 7 (6.35)

Name _____ Date _____

DECIMAL/FRACTION CONVERSION PRE-TEST

Change to the nearest 16th inch or thousandth of a foot (unless otherwise indicated)

1. 6' 7 3/4" = _____

2. 4.825' = _____

3. 47' 1/4" = _____

4. 13.281' = _____

5. 7' 2 5/16" = _____

DECIMAL/FRACTION CONVERSION PRE-TEST KEY

Change to the nearest 16th inch or thousandth of a foot (unless otherwise indicated.)

1. 6' 7 3/4" = 6.646'

2. 4.825' = 4' 9 7/8"

3. 47' 1/4" = 47.021'

4. 13.281' = 13' 3 3/8"

5. 7' 2 5/16" = 7.193'

Skill Builders SC/SC/MT 7/22/91

Name _____ Date _____

DECIMAL/FRACTION CONVERSION POST-TEST

Change to the nearest 16th inch or thousandth of a foot (unless otherwise indicated.)

1. 8' 5 7/8" = _____

2. 5.775' = _____

3. 33' 6 3/4" = _____

4. 12.302' = _____

5. 14' 3 9/16" = _____

DECIMAL/FRACTION CONVERSION POST-TEST KEY

Change to the nearest 16th inch or thousandth of a foot (unless otherwise indicated.)

1. 8' 5 7/8" = 8.49'

2. 5.775' = 5' 9 5/16"

3. 33' 6 3/4" = 33.5625'

4. 12.302' = 12' 3 5/8"

5. 14' 3 9/16" = 14.297"

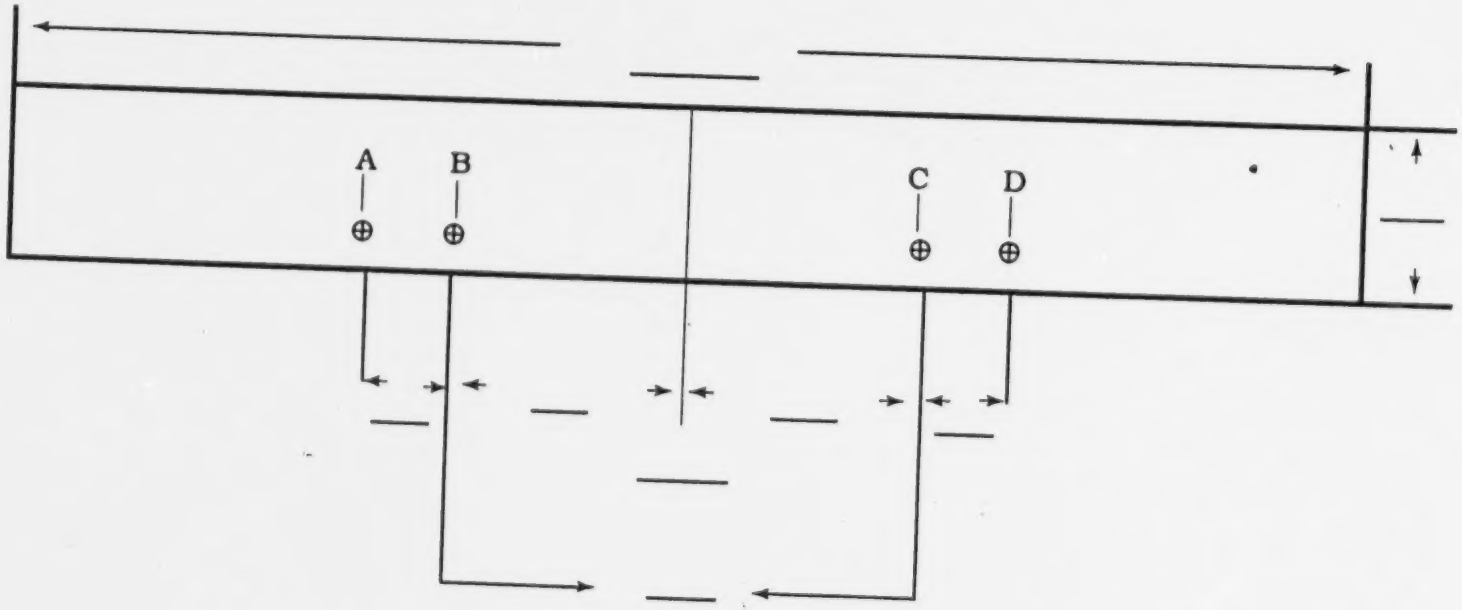
Name _____

HO 2.1

Date _____

MEASUREMENT

Measure the dimensions of the Beam, Cross Drom taken from a blueprint.

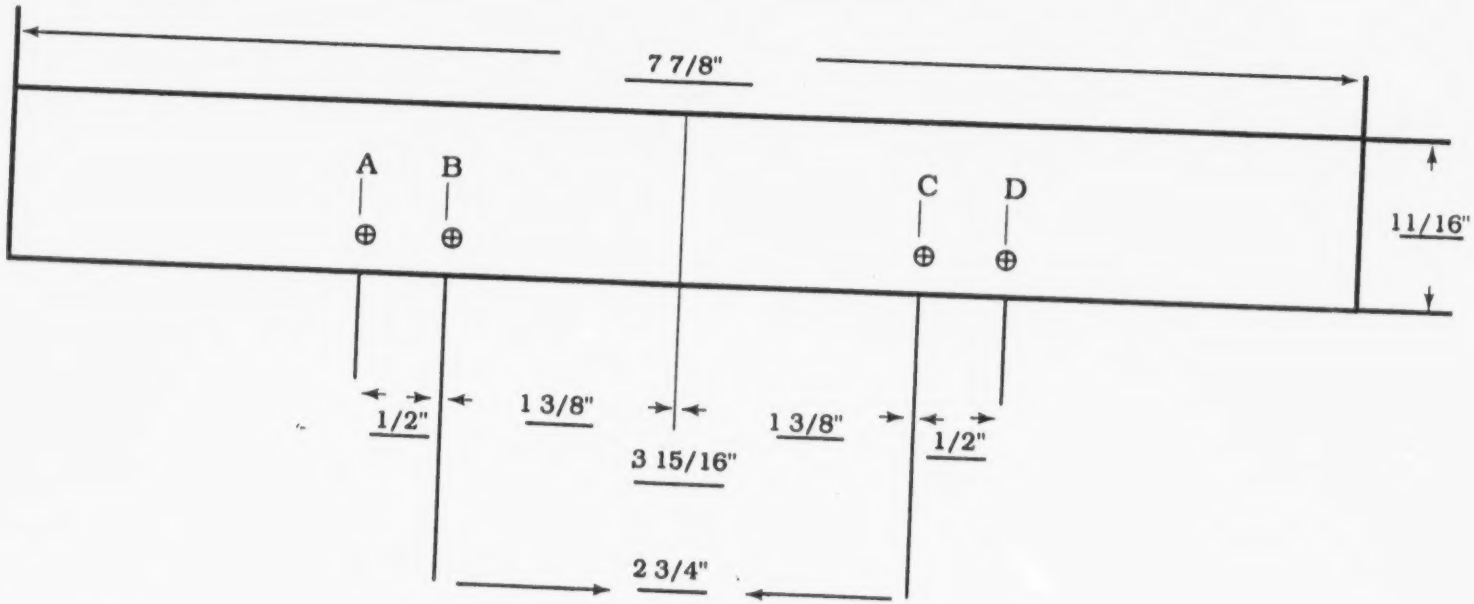


47

45

MEASUREMENT KEY

Measure the dimensions of the Beam, Cross Drom taken from a blueprint.



With a partner measure at least 5 of the samples lettered below.

SAMPLE

A = _____

B = _____

C = _____

D = _____

E = _____

F = _____

G = _____

H = _____

I = _____

J = _____

HO 2.1, Page 2 KEY

A = 35 3/16"

B = 60 3/4"

C = 67 3/16"

D = 31"

E = 40 1/4"

F = 36 1/4"

G = 31 1/8"

H = 27 5/8"

I = 19 1/2"

J =

MEASUREMENT AND TOLERANCES

Refer to HO 2.1 to complete the following:

1. Find each answer using addition or subtraction, then check using your tape measure. **(Show your work.)**

   a. The length from A to C _____

   b. The length from A to D _____

   c. The length from the left side of the beam to the center _____

   d. The length from B to the right side of the beam _____

   e. How much longer is the beam than it is high _____

2. Using the following cut tolerances for the measurements you took, give the longest and shortest each could be to be acceptable.

	Work order calls for:	**Cut Tolerances**	**Longest**	**Shortest**
A.	35 3/16"	+ 1/8", - 0	_____	_____
B.	60 3/4"	+/- 1/32"	_____	_____
C.	67 3/16"	+/- 1/4"	_____	_____
D.	31"	+ 0", - 1/4"	_____	_____
E.	40 1/4"	+/- 1/8"	_____	_____
F.	36 1/4"	+ 0", - 1/32"	_____	_____
G.	31 1/8"	+/- 1/16"	_____	_____
H.	27 5/8"	+ 3/16", - 1/8"	_____	_____
I.	19 1/2"	+ 0", - 1/4"	_____	_____

HO 2.2
(Use with HO 2.1)

MEASUREMENT AND TOLERANCES KEY

Refer to HO 2.1 to complete the following:

1. Find each answer using addition or subtraction, then check using your tape measure. **(Show your work.)**

   a. The length from A to C 3 1/4"

   b. The length from A to D 3 3/4"

   c. The length from the left side of the beam to the center 3 15/16"

   d. The length from B to the right side of the beam 5 5/16"

   e. How much longer is the beam than it is high 6 7/8"

2. Using the following cut tolerances for the measurements you took, give the longest and shortest each could be to be acceptable.

	Work order calls for:	Cut Tolerances	Longest	Shortest
A.	35 3/16"	+ 1/8", - 0	35 5/16"	35 3/16"
B.	60 3/4"	+/- 1/32"	60 25/32"	60 23/32"
C.	67 3/16"	+/- 1/4"	67 7/16"	66 15/16"
D.	31"	+ 0", - 1/4"	31"	30 3/4"
E.	40 1/4"	+/- 1/8"	40 3/8"	40 1/8"
F.	36 1/4"	+ 0", - 1/32"	36 1/4"	36 7/32"
G.	31 1/8"	+/- 1/16"	31 3/16"	31 1/16"
H.	27 5/8"	+ 3/16", - 1/8"	27 13/16"	27 1/2"
I.	19 1/2"	+ 0", - 1/4"	19 1/2"	19 1/4"

Name _____ Score _____

Date _____

UNIT II REVIEW

1. Measure the four pieces placed on the classroom tables to within 1/16 of an inch.

Pc. #1 = _____ Pc. #2 = _____

Pc. #3 = _____ Pc. #4 = _____

2. If the O.A.L. of a pc. is 139 3/16", what is the longest and shortest this piece can be if the cut tolerance is +0", - 1/4"?

Longest _____ Shortest _____

3. The O.A.L. given on the Work Order is 254". The cut tolerance is + 1/8", -0". Are the following pcs. in tolerance?

Date	Truck	Pcs.	Length
5/14	76	16	254 1/4"
5/15	650	180	254"
5/17	80	76	253 7/8"
5/17	60	9	254 1/8"

YES	NO
_____	_____
_____	_____
_____	_____
_____	_____

UNIT II REVIEW KEY

1. Measure the four pieces placed on the classroom tables to within 1/16 of an inch.

Pc. #1 = _____ Pc. #2 = _____

Pc. #3 = _____ Pc. #4 = _____

2. If the O.A.L. of a pc. is 139 3/16", what is the longest and shortest this piece can be if the cut tolerance is +0", - 1/4"?

Longest 139 3/16" Shortest 138 15/16"

3. The O.A.L. given on the Work Order is 254". The cut tolerance is + 1/8", -0". Are the following pcs. in tolerance?

Date	Truck	Pcs.	Length	YES	NO
5/14	76	16	254 1/4"		X
5/15	650	180	254"	X	
5/17	80	76	253 7/8"		X
5/17	60	9	254 1/8"	X	

Name _____

Date _____

HO 3.2 _____ /23

Give the decimal equivalent for each fraction:

1. 1/8 = _____

2. 7/8 = _____

3. 3/8 = _____

4. 3/4 = _____

5. 1/4 = _____

6. 5/8 = _____

Find the decimal answer for these fraction problems:

Example:

$$\begin{array}{rl} & 1/4 = .250 \\ + & 1/8 = .125 \\ \hline & \text{Ans. } .375 \end{array}$$

7.

$$\begin{array}{rl} & 3/8 = ____ \\ - & 1/8 = ____ \\ \hline & \text{Ans. } ____ \end{array}$$

8.

$$\begin{array}{rl} & 1/2 = ____ \\ + & 3/8 = ____ \\ \hline & \text{Ans. } ____ \end{array}$$

9.

$$\begin{array}{rl} & 1/8 = ____ \\ + & 5/8 = ____ \\ \hline & \text{Ans. } ____ \end{array}$$

10.

$$\begin{array}{rl} & 5/8 = ____ \\ - & 1/4 = ____ \\ \hline & \text{Ans. } ____ \end{array}$$

For the given measurements, give the correct decimal equivalent.

Example: 6 1/4" = 6.250" or 6.25"

11. 3 1/8" = _____

12. 17 5/8" = _____

13. 9 3/8" = _____

14. 23 7/8" = _____

15. 37 1/2" = _____

KEY

Give the decimal equivalent for each fraction:

1. 1/8 = .125
2. 7/8 = .875
3. 3/8 = .375
4. 3/4 = .750 or .75
5. 1/4 = .250 or .25
6. 5/8 = .625

Find the decimal answer for these fraction problems.

Example: 1/4 = .250
+ 1/8 = .125
Ans. .375

7. 3/8 = .375
- 1/8 = .125
Ans. .250 or .25

8. 1/2 = .500 or .5
+ 3/8 = .375
Ans. .875

9. 1/8 = .125
+ 5/8 = .625
Ans. .750 or .75

10. 5/8 = .625
- 1/4 = .250
Ans. .375

For the given measurements; give the correct decimal equivalent.
Example: 6 1/4" = .6250" or 6.25"

11. 3 1/8" = 3.125"
12. 17 5/8" = 17.625"
13. 9 3/8" = 9.375"
14. 23 7/8" = 23.875"
15. 37 1/2" = 37.500" or 37.5"

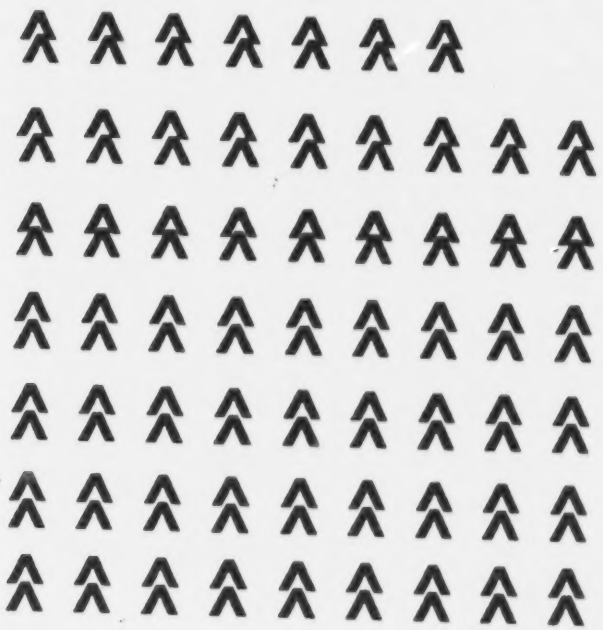
NAME _____

DATE _____

SCORE _____ /50

POST-ASSESMENT
(Please show your work)

1. How many pcs. are on truck #42? _____



Find the correct answer using multiplication. Check using your calculator.

2. 291
x 47

3. 103
x 13

Find the correct answer using division. Check using your calculator.

4. $19\overline{)380}$

5. $104\overline{)3692}$

6. Truck #27 has 34 pcs.
Truck #13 has 17 pcs.
Truck #92 has 59 pcs.

Your work order calls for 112 pcs. Is your order:

_____ Complete
_____ Long
_____ Short
_____ By how many

7. How many trucks will you need if each truck holds 38 pcs. and your work order is for 280? _____

leasure the 4 pcs. placed on the classroom tables to within 1/16 of an inch.

8. _____ 9. _____

10. _____ 11. _____

12. The length of a piece is 147 & 3/4 inches. It needs to be cut in half. What is the length of each half?

_____

13. From a piece that is 192 & 3/4 inches, you need to cut 3 equal size pcs. How long would each be? _____

14. You have four pcs. each 27 7/8 inches in length. What is their total length?

_____

If a work order calls for pieces that are 156 1/4 inches long and the cut tolerance is + 1/4", - 1/8", which of the following are in tolerance?

		Yes	No
15.	156 1/8"	_____	_____
16.	157"	_____	_____
17.	156 3/8"	_____	_____
18.	156 1/16"	_____	_____

Convert these fraction problems to decimals and solve both in fractions and decimals.

19. 3/4 = _____
+ 1/8 = _____
_____ = _____

20. 3/8 = _____
+ 1/4 = _____
_____ = _____

21. 7/8 = _____
- 1/4 = _____
_____ = _____

22. 5/8 = _____
- 1/4 = _____
_____ = _____

For the given measurements; give the correct decimal equivalent.

23. 4 1/4" = _____

24. 92 3/8" = _____

25. 5 7/8" = _____

26. 127 3/4" = _____

27. If you have a piece that is 122.375" and the work order calls for it to be 122.125", how much must be cut off? _____

28. Find the longest and shortest these pieces can be by adding and subtracting the tolerance.

    a) 194" +/- .125" _____ _____

    b) 56.25" +.375", -0" _____ _____

29. Each piece weighs .571 lbs. per foot. You have 115 feet of material. What is the total weight? _____

30. A piece is 12.375" long and weighs .583 lbs. What is the WGT/FT? _____

31. Change decimal to percent.

    a) .52 _____ %

    b) 1.125 _____ %

32. What percent is 11 out of 198 pcs.? _____ %

33. What percent is 253 out of 221 pcs.? _____ %

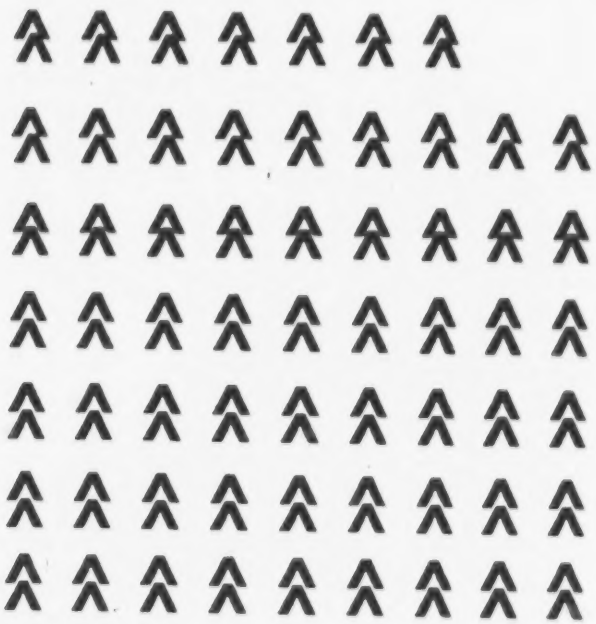
NAME _____

DATE _____

SCORE _____ /50

POST-ASSESMENT
(Please show your work)

1. How many pcs. are on truck #42? 104 pcs.



Find the correct answer using multiplication. Check using your calculator.

2.
$$\begin{array}{r} 291 \\ \times\ 47 \\ \hline 13{,}677 \end{array}$$

3.
$$\begin{array}{r} 103 \\ \times\ 13 \\ \hline 1{,}339 \end{array}$$

Find the correct answer using division. Check using your calculator.

4. $19\overline{)380}$ = 20

5. $104\overline{)3692}$ = 35 r. 52 or 35.5

6. Truck #27 has 34 pcs.
Truck #13 has 17 pcs.
Truck #92 has 59 pcs.

Your work order calls for 112 pcs. Is your order:

_____ Complete
_____ Long
X Short
2 By how many

7. How many trucks will you need if each truck holds 38 pcs. and your work order is for 280? 8

Measure the 4 pcs. placed on the classroom tables to within 1/16 of an inch.

8. 40 1/4"

9. 27 5/8"

10. 67 3/16"

11. 36 1/4"

12. The length of a piece is 147 & 3/4 inches. It needs to be cut in half. What is the length of each half? 73 7/8"

13. From a piece that is 192 & 3/4 inches, you need to cut 3 equal size pcs. How long would each be? 64 1/4"

14. You have four pcs. each 27 7/8 inches in length. What is their total length?
111 1/2"

If a work order calls for pieces that are 156 1/4 inches long and the cut tolerance is + 1/4", - 1/8", which of the following are in tolerance?

		Yes	No
15.	156 1/8"	X	
16.	157"		X
17.	156 3/8"	X	
18.	156 1/16"		X

Convert these fraction problems to decimals and solve both in fractions and decimals.

19.
$$\begin{array}{rcl} 3/4 & = & .75 \\ +\ 1/8 & = & .125 \\ \hline 7/8 & = & .875 \end{array}$$

20.
$$\begin{array}{rcl} 3/8 & = & .375 \\ +\ 1/4 & = & .25 \\ \hline 5/8 & = & .625 \end{array}$$

21.
$$\begin{array}{rcl} 7/8 & = & .875 \\ -\ 1/4 & = & .25 \\ \hline 5/8 & = & .625 \end{array}$$

22.
$$\begin{array}{rcl} 5/8 & = & .625 \\ -\ 1/4 & = & .25 \\ \hline 3/8 & = & .375 \end{array}$$

For the given measurements; give the correct decimal equivalent.

23. 4 1/4" = 4.25

24. 92 3/8" = 92.375

25. 5 7/8" = 5.875

26. 127 3/4" = 127.75

27. If you have a piece that is 122.375" and the work order calls for it to be 122.125", how much must be cut off? .25"

28. Find the longest and shortest these pieces can be by adding and subtracting the tolerance.

    a) 194" +/- .125" 194.125" 193.875"

    b) 56.25" +.375", -0" 56.625" 56.25"

29. Each piece weighs .571 lbs. per foot. You have 115 feet of material. What is the total weight? 65.665 lbs.

30. A piece is 12.375" long and weighs .583 lbs. What is the WGT/FT? .565 lbs.

31. Change decimal to percent.

    a) .52 52% %

    b) 1.125 112.5% %

32. What percent is 11 out of 198 pcs.? 5.56% %

33. What percent is 253 out of 221 pcs.? 114% %

ANODIZING, INC.

HANDOUTS/OVERHEAD TRANSPARENCIES

FRACTIONS OF AN INCH

Name _____ HO 1.1

TRUCK NO. 75
COUNTING PIECES

COUNTING PIECES

First, find out how many you have on this truck.

Count how many in one row, then count the number of rows on the truck.

Then, multiply how many in one row by how many rows there are.

If you subtract how many you have on your truck from how many your work Order calls for, you know how many more you need to finish the order.

How many pieces on this truck?_____

FRACTION/DECIMAL EQUIVALENTS

1/8 = 1 ÷ 8 = .125

1/4 = 1 ÷ 4 = .250 OR .25

3/8 = 3 ÷ 8 = .375

1/2 OR 4/8 = 1 ÷ 2 = .500 OR .5
(4 ÷ 8 - .500 OR .5)

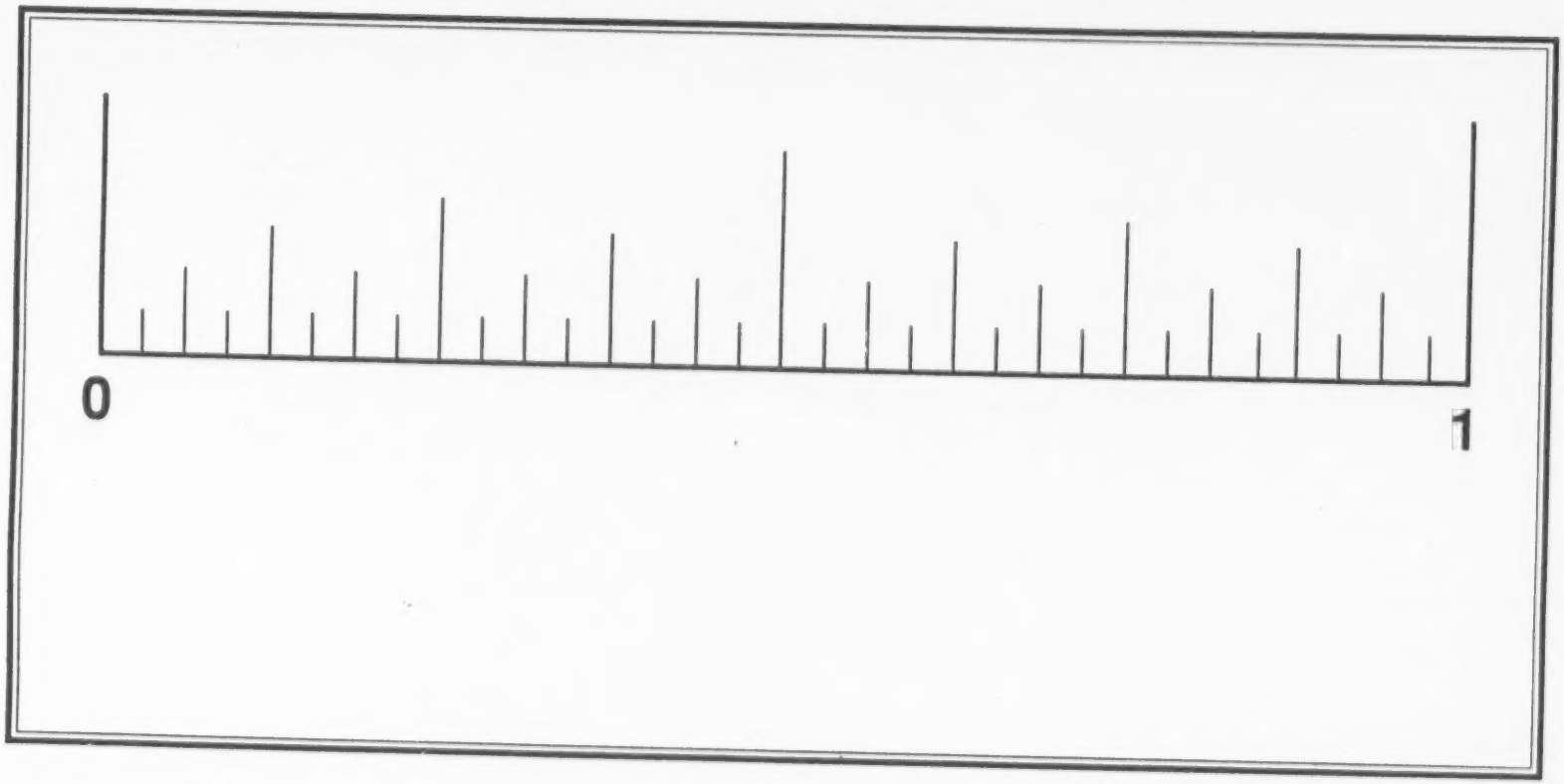
5/8 = 5 ÷ 8 = .625

3/4 OR 6/8 = 3 ÷ 4 = .750 OR .75
(6 ÷ 8 = .750 OR .75)

7/8 = 7 ÷ 8 = .875

8/8 = 8 ÷ 8 = 1.

FRACTIONS OF AN INCH



EQUAL FRACTIONS

1/2 = 2/4 = 4/8 = 8/16 = 16/32

3/4 =

5/8 =

6/16 =

MIXED NUMBERS

50 & 7/8 IN.

125 & 1/2 IN.

139 & 3/16 IN.

43 & 1/4 IN.

129 & 5/8 IN.

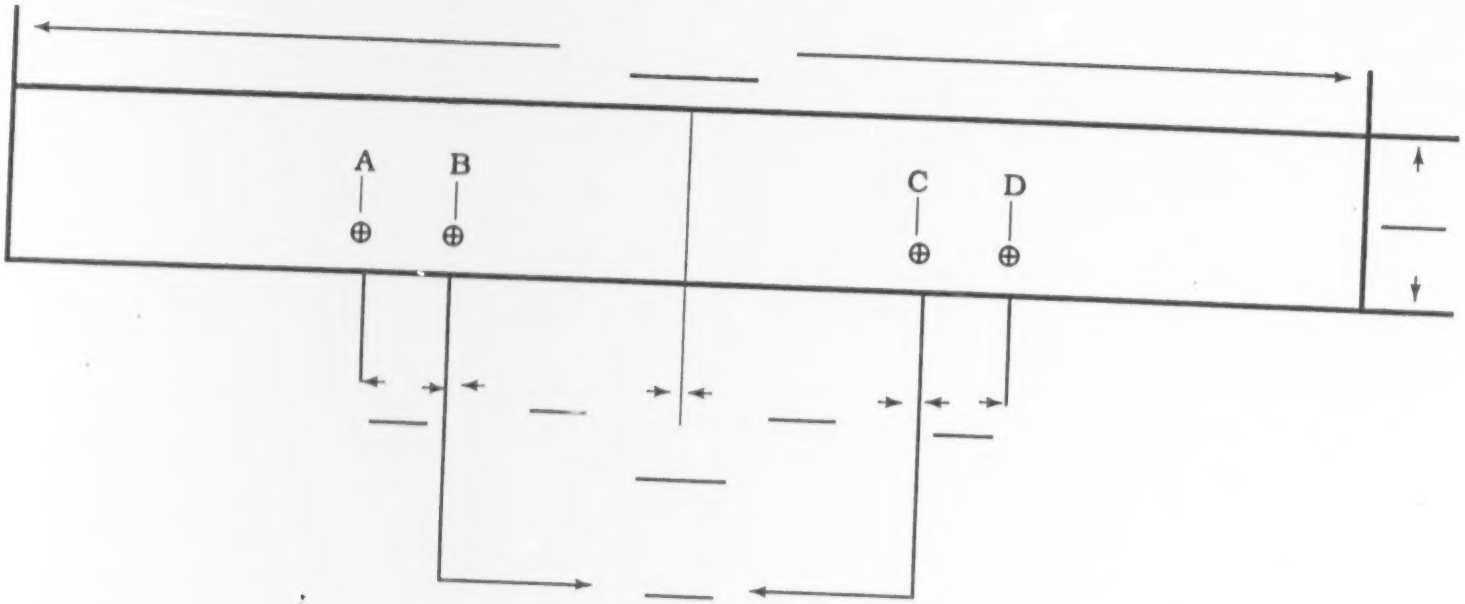
Name _____

OHT 2..4

Date _____

MEASUREMENT

Measure the dimensions of the Beam, Cross Drom taken from a blueprint.



79

With a partner measure at least 5 of the samples lettered below.

SAMPLE

A = _____

B = _____

C = _____

D = _____

E = _____

F = _____

G = _____

H = _____

I = _____

J = _____

FRACTION/DECIMAL EQUIVALENTS

1/8 = 1 ÷ 8 = .125

1/4 = 1 ÷ 4 = .250 OR .25

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1/2 OR 4/8 = 1 ÷ 2 = .500 OR .5
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(6 ÷ 8 = .750 OR .75)

7/8 = 7 ÷ 8 = .875

8/8 = 8 ÷ 8 = 1.

ADDING/SUBTRACTING FRACTIONS AND EQUAL DECIMALS

$$1/8 + 1/8 = 2/8 \text{ OR } 1/4$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$.125 + .125 = .250 \text{ OR } .25$$

$$5/8 - 1/8 = 4/8 \text{ OR } 1/2$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$.625 - .125 = .500 \text{ OR } .5$$

$$1/4 + 5/8 = 7/8$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$2/8 + 5/8 = 7/8$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$.250 + .625 = .875$$

$$1/2 - 1/4 = 1/4$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$2/4 - 1/4 = 1/4$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$.500 - .250 = .250 \text{ OR } .25$$

ANODIZING, INC.

FORMS

ANODIZING, INC.

Course Summary

	June 10,12	Assessment
UNIT 1:	July 1,3	Introductory class Place Value/Counting/Addition/Subtraction
	July 8, 10	Multiplication
	July 15, 17	Division/Review
UNIT 2:	July 22, 24	Review Unit I Using a tape measure Introduction of Fractions
	July 29, 31	Computations using Fractions/Tolerances
UNIT 3:	August 5, 7	Review Unit 2 Decimals/Introduction to Percents
	August 12, 14	Percents/Tolerances
	August 19, 21	Review Unit 3 Post Assessment
	August 26, 28	Wrap-up/Evaluations

Skill Builders SC/SC/MT 7/10/91

TRAINING PLAN

Unit _____

Lesson _____

Objective

ANODIZING, INC.

Date _____

Activity	Script	Materials
INTRODUCTION/REVIEW		
INSTRUCTION		
SKILL APPLICATION		
ENRICHMENT ACTIVITY		

ANODIZING ATTENDANCE

MONDAYS, 2:30 -3:30 pm

NAME	ASSESSMENT	7/1 INTRO CLASS	7/8 MULTIPLICATION DIVISION	7/15 TAPE MEASURE FRACTIONS	7/22 DECIMALS	7/29 PERCENT TOLERANCES	8/5 WORD PROBLEMS	8/12 POST-ASSESSMENT	8/19 EVALUATIONS

ANODIZING ATTENDANCE

WEDNESDAYS, 6:30 - 7:30 am

NAME	ASSESSMENT	7/3 INTRODUCTORY CLASS	7/10 MULTIPLICATION DIVISION	7/17 TAPE MEASURE FRACTIONS	7/ 24 DECIMALS	7/31 PERCENT/ TOLERANCES	8/7 WORD PROBLEMS	8/14 POST-ASSESSMENT	8/21 EVALUATIONS

Anodizing, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	5	4	3	2	1	very boring
2. This class was						
very hard	5	4	3	2	1	very easy
3. On the job this class helped me						
to do more accurate work	5	4	3	2	1	not at all
4. The instructors were						
interesting	5	4	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	5	4	3	2	1	rarely
6. Sufficient practice exercises were included						
too many	5	4	3	2	1	too few
7. I received sufficient feedback on my practice exercises						
always	5	4	3	2	1	rarely
8. The reviews measured my performance on the lessons						
always	5	4	3	2	1	never

9. I received sufficient feedback on my reviews						
always	5	4	3	2	1	never
10. After being in this class, I would						
like to have more training like this	5	4	3	2	1	no more training like this
11. This class has been						
very useful to me on the job	5	4	3	2	1	total useless to me on the job

12. What can you do now that you could not do before taking this class?

13. Has this class helped you meet or work toward any of your personal goals? If so, how?

14. Would you recommend this class to a co-worker? Why or why not?

15. What did you like best about this class? Least?

PLEASE RETURN THIS EVALUATION TO JOHN FOSTER BY AUGUST 30, 1991.
THANK YOU FOR YOUR INPUT!

Anodizing, Inc.

Math Skills Class

SUPERVISOR EVALUATION

Participant_____ Job Title_____

What effect did the participation in the math class have on your employee? Circle the number that applies for each item.

1.	The trainee indicated that the course was well designed and helpful.					
Very well done	5	4	3	2	1	poor
2.	He/she mastered the material he/she was taught.					
definitely	5	4	3	2	1	not at all
3.	He/she has greater cooperation and/or problem solving ability since the class.					
Yes	5	4	3	2	1	I see no difference
4.	The trainee applies the skills learned in class on the job.					
Yes	5	4	3	2	1	I see no difference
5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	5	4	3	2	1	Much worse

6. What was the most positive effect of this course on the employee?

_____

_____

_____

_____

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO JOHN FOSTER BY AUGUST 30, 1991.

Skill Builders MT rev. 8/2291